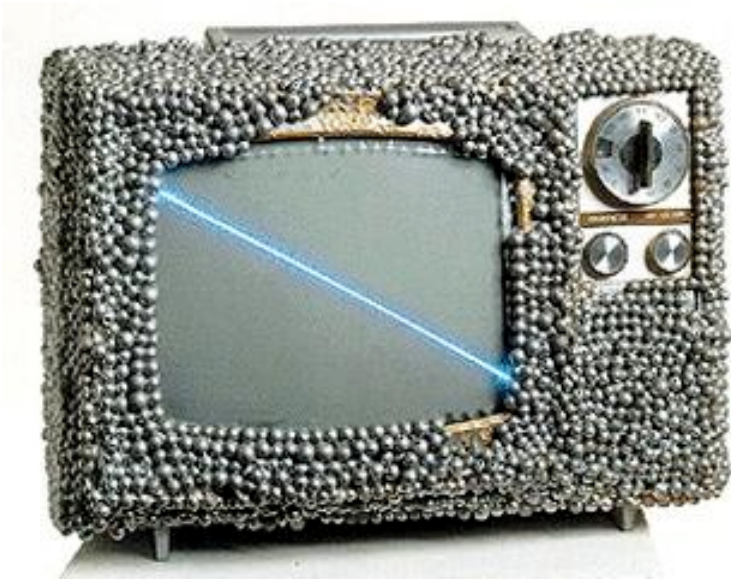


MIAP Handling New Media Class:
Miwa Yokoyama, Loni Shibuyama
Lauren Sorensen, Sarah Resnick
Josh Ranger, Rob Moore, Lynley Lys

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©Paik, Nam June; Piene, Otto, «TV Sculpture», 1968

Picture taken from:

Media Art Net

<http://www.medienkunstnetz.de/artist/paik+piene/biography/>

Introduction:

The following case study presents findings and recommendations submitted by graduate students in Professor Mona Jimenez's Handling New Media course, part of the NYU Moving Image Archiving and Preservation (MIAP) program. Following a brief introduction by Professor Jimenez and preliminary individual research, on December 1, 2006, students met with MoMA Conservator Glenn Wharton, MoMA Curator Barbara London, MoMA Registrar Sydney Briggs, and Jon Huffman Curator of the Paik Studios, to discuss conservation and preservation issues for Nam June Paik's altered TV sculpture, *Untitled*. A videotape was made of the discussion. Students researched the artwork and

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presented their findings outlined in this report on December 13, 2006 to Sydney Briggs and Glenn Wharton. A guideline to the sections of this report follows.

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[Compiled and edited by LynleyShimat Lys]

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Nam June Paik Biography:

Nam June Paik is known as one of the inventors of video art. Born in Seoul, South Korea in 1932, he studied music and art history at the University of Tokyo, and then traveled to Germany to further his music studies. There he met George Maciunas and John Cage and became involved with the Fluxus movement. His early works, often in collaboration with other artists, combined performance and experimental music. Paik became interested in

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television's electronic technology and in 1963 at the Galerie Parnass in Wuppertal, Germany, he exhibited one of the first artworks to incorporate television.¹

When he moved to New York in 1964, Paik was one of the first artists to record video using the Sony Portapak, and his first New York solo exhibition followed at the Galleria Bonino in 1965.² Paik explored the "sculptural, technological, and environmental possibilities of video"³ through manipulating television and the moving image, themes recurring throughout his prolific career. Paik, an art professor at Staatlichen Kunstakademie in Dusseldorf, was featured by the Solomon R. Guggenheim Museum in 2000, in the exhibit *The Worlds of Nam June Paik*, a major retrospective of his career. Paik died in January 2006.

Composition and Display:

Untitled consists of a Symphonic Model TPT 800 television encrusted with painted silver-grey plastic pearls. The pearls are affixed to the television with an adhesive, and cover the surface of the television's front section, the two side panels, and the top and front panels. No pearls are found on the television's screen, back section and bottom panel. The set includes a metal antenna, a brown plastic handle, and three silver dials located on the front panel.

¹ Roberta Smith, "Nam June Paik, 73, Dies; Pioneer of Video Art Whose Work Broke Cultural Barriers," *New York Times* 31 January 2006, late edition: B8. *New York Times*. Proquest. NYU's Bobst Library, New York, NY. 6 December 2006. <<http://proquest.umi.com/>>

² John Hanhardt, *The Worlds of Nam June Paik* (New York: Guggenheim Museum, 2000) 254.

³ Smith.

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When powered on, the television displays an 8" diagonal line from the top-left to the bottom-right corner of the screen. The volume must remain off⁴, and the antenna and handle should be in their resting positions. According to a CRT repair expert at CTL Electronics, Inc⁵, the diagonal line was obtained by first disabling one of the television's deflection circuits to create a horizontal line. Then, a turn of the deflection yoke⁶ 90-degrees creates a diagonal scan.

According to Jon Huffman, the artist's representative and Curator at the Nam June Paik Studios, the work should be exhibited as a video sculpture on a table or stand, set up away from the wall, with all sides, including the back, easily viewable. The lighting should be diffuse, with none directly on the screen itself to avoid obscuring the contrast; however, some light should illuminate the pearls on the top and sides.

Paik's Working Method:

While Paik's working method for *Untitled*, is difficult to determine, we do know that he worked together with Otto Piene, a German artist and co-founder of avant-garde artist collaborative, Zero Group.⁷ Jon Huffman, Paik's assistant, explained that Piene and Paik likely met through collaborations between the Zero Group and the Fluxus Group in Germany. Paik asked Piene to decorate the television set exterior with painted beads. Due to time constraints, interviewing Otto Piene was not possible for this report. If

⁴ As recollected by MoMA Curator Barbara London on December 1, 2006. Unless otherwise noted, all subsequent references to statements by London or Huffman are from the above-mentioned discussion on December 1, 2006

⁵ CTL Electronics, Inc. 45 Murray Street, New York, N.Y. 10007 ; 212-233-0754 Fax: 212-227-3273 / lui@ctlny.com / www.ctlny.com/

⁶ A magnetic coil at the rear of the tube that guides the electron gun to "draw" the image on the face of the tube.

⁷ "Otto Piene," Ketterer Kunst, Accessed 8 December 2006 at <<http://www.kettererkunst.com/bio/OttoPiene-1928.shtml/>>

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feasible, a museum interview with him may yield further details about the exterior sculptural aspect of the work.

Based on Paik's similar television set works like *Zen for TV* (1963), it is thought that, as noted above, the artist altered *Untitled*'s television interior to create the diagonal line. Attracted to how televisions operated, Paik trained himself with television mechanics, creating new methods for manipulating abstract images. Huffman recalled that *Zen for TV*, which exhibits a single vertical line, was created by a "happy accident;" when Paik was playing with the TV's interior yoke and changing its direction, he discovered that the screen image could be altered and compressed. He welcomed such accidents and learned through experimentation.

Key Qualities:

John Huffman confirmed that the essence of *Untitled* is the construction of the diagonal line image on the monitor. The cathode ray tube's electron beam, the image-making scan lines in real time, and Paik's manipulation of the process, are fundamental to understanding this TV sculpture as a work of art. Consequently, Huffman encouraged CRT tube maintenance for this piece. Although Nam June Paik was not opposed to the migration of media, LCD and plasma screens are discouraged for the preservation of *Untitled*, and should only be used as a last resort when CRTs can no longer be maintained or replaced.

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Huffman also emphasized that Paik's works explore notions of time and transience. The artist celebrated decay, and had a love for the patina of an object – the resonance of a past long vanished – and thus, Paik's aesthetic extended to an appreciation of the visible aging of the work. Accordingly, Huffman recommends the work not be restored to a clean, polished, pristine state. Furthermore, Huffman suggests that any pearls that fall off need not be replaced, particularly if they are few. An anecdote from Fernanda Bonino supports this recommendation. While in her care, some pearls had fallen off the piece and Bonino asked Paik if he would like them to be reglued. Paik opposed the restoration of the pearls, and explained that like him, the work was growing old.

Exhibition History & Provenance⁸:

Untitled was first owned by Fernanda Bonino of Galeria Bonino⁹. It was commissioned for the Bonino gallery's *electronic art II* exhibition, one of Paik's first (solo) exhibitions, comprised of pieces created in collaboration with other artists. As noted above, Nam June Paik and Otto Piene collaborated on *Untitled*. According to Bonino, Piene's role in the production of the piece was the application of the beads.

Untitled has only been shown in two exhibitions. The first was at the initial Galeria Bonino showing in New York from April 17 to May 11, 1968, exhibition #32. The

⁸ Interview with Fernanda Bonino by Lauren Sorensen, December 12, 2006.

⁹ Located at 48 Great Jones Street #4R, New York, NY (212-598-5262), previously located at 7 West 57th Street in New York, NY.

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exhibition was divided into two rooms, one light and one dark. *Untitled* was located in the lighted room amidst other decorated television sets. The darkened room contained a cruciform comprised of eight TVs and a wall of ten color sets.¹⁰ The catalog for this exhibition includes an introduction by Allan Kaprow and black and white photographic reproductions of several works, not including *Untitled*.

Untitled's second show was a 1993 two part exhibition called "Video Time – Video Space," in which parallel exhibitions were held in Zurich at Kusthaus Zurich & Basel; at Kunsthalle Basel in Switzerland; in Dusseldorf at the Städtische Kunsthalle, Germany; and in Vienna at the Museum des 20 [Zwanzig] Jahrhunderts, Austria.¹¹ This exhibition catalog also includes a high quality photograph of the work.

Bonino recalled that when asked about replacing dislodged beads, Paik declined the need for replacement, commenting that the work "was getting old, like me." (Documentation in MoMA's files indicates that MoMA's conservation department replaced missing beads in early 2000). According to Bonino, the television is composed of all the original elements and has never required repair. It was stored in her home office until 2000, when the Carl Solway Gallery in Cincinnati, (its owner prior to MoMA), purchased it, and the only time of transport was when the piece was shipped for the two exhibitions. Bonino has two copies of the exhibition catalog from the initial exhibition, and has lent one temporarily for the purposes of photocopying for addition to MoMA's files.

¹⁰ "Exhibition at Bonino Gallery." *Arts Magazine*. v. 42. June 1968: 63 ; "Exhibition at Bonino Gallery." *Art News*. v. 67. May 1968: 56

¹¹ Kellein, Thomas and Toni Stooss. *Video Time – Video Space*. Stuttgart: Edition Cantz: 1991.

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Condition:

The surface of the television is soiled with dust and grime, and the exposed adhesive has yellowed. A number of pearls are missing, particularly along the right side, and the gray paint is flaking off some of the others. In addition, the image of the diagonal line has left a permanent burn on the screen. The television handle moves and the antenna fully extends upwards and rotates on its axis. A handwritten sticker under the handle reads "1017," and one on the back section reads "2701". A number on the Symphonic label (also on the back section) reads "Japan T4 – 261618", and is assumed to be the serial number. The power cord is intact, and the set powers on and displays the image correctly. The control dials were not assessed – details of their functionality are not known. As the back of the television has yet to be removed, no assessment of the set's inner mechanics has been performed to date.

Technology¹²:

Untitled, unlike most works acquired by museums, depends on technology that is rapidly becoming obsolete. Both the hardware and the electronic elements create factors that contribute to the problems that will likely occur and the eventual demise of the set. These must be considered when determining the ways that the work can be preserved using current technology.

¹² Based on research and interviews conducted by Rob Moore with staff at C.T.L. Electronics, NYU Film & Production Department staff, and others.

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The work consists of a 1968 era 'portable' black-and-white television set encrusted with plastic 'pearls,' apparently designed as a stand-alone work. The set itself is a Symphonic model TPT-800. It is rated for use in the United States at 120 volts and 60 hertz and has a two-prong (ungrounded) power cable that is permanently attached. The screen measures 8" diagonally and the set has a serial number sticker on the bottom as well as several hand-written stickers with numbers, possibly from ingest at the institutions where it was exhibited.

There are several adjustments and knobs on the set. Starting with the right side proper, 'CONT' adjusts the contrast of the image and 'V. HOLD' adjusts the vertical roll of the image. (Both are not necessary given the adjustments Paik has made to the set.) On the front panel there are controls for 'OFF VOLUME' as well as 'BRIGHTNESS' and an analog channel selector. The rear of the set has controls marked 'H HOLD', 'V LIN' and 'HEIGHT.' The first of the rear controls, 'H HOLD' adjusts the problem of horizontal 'tearing' of the image. 'HEIGHT' maintains the image as square (to avoid problems with 'pincushion' effect, aptly named because the image may reflect the same shape). 'V LIN' controls vertical linearity (if the image is not linear the top or bottom appears stretched; vertical circuits use feedback to adjust the signal for optimum linearity and to correct picture distortions).

According to a repairperson at CTL Electronics, Paik adjusted the scanning raster by first disconnecting the vertical deflection circuit. This causes the same 525 lines of resolution to be drawn, as in a standard TV display, but the lines are all drawn in the same area of

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the tube, visually compressed into a thin horizontal line across the screen). Next, he physically turned the deflection yoke (a coil wrapped around the back part of the tube, located just in front of the electron gun) to affect the scanning mechanism. This creates the diagonal line across the screen, visible when the TV is turned on.

Although the tube itself, a CRT, is considered to have a lifespan of decades unless dropped or mishandled, even a trained technician would need a service manual¹³, or at least a schematic of the circuit boards, to do anything more than cleaning or obvious repairs. Symphonic, better known as an audio electronics manufacturer, no longer has information on these sets and refers inquiries to electronics giant Philips Electronics. Philips no longer has information on this line of equipment but did have several local authorized repair services that they said could service the set. Each of these repair services didn't seem familiar with the Symphonic set but insisted they could fix it if the set was brought to them.¹⁴ CTL Electronics, the service that may have actually altered televisions for Nam June Paik, was not one of the ones listed. Although C. T. Lui, the original owner, has passed away, the technicians on site are both knowledgeable and

¹³ Manuals are available, for approximately twenty US dollars, online at www.samswebsite.com/photofact/pf_search.asp.

¹⁴ 'Authorized Repair Services' (per Philips Corporation)

- Staten Island Radio Hospital (718) 442-0544
- Advanced Solutions (718) 829-7510 bronx.television.com
- Santo Electronic Corp. (914) 761-1919
- NewSonic Radio (914) 949-2500
- Linn TV (914) 949-5413
- Acme Electronics (914) 237-7615
- Audio/Video Workshop (914) 776-1171

Symphonic (Funai Corp.) refers service questions from older equipment to Philips at: (800) 531-0039 or (800) 252-6123

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helpful when the history of Paik's work is brought to their attention. CTL is also the only repair service with a location within Manhattan.

Careful handling in storage and shipping should be considered the most important precautions for preservation. As with all electronics, the tube will eventually go out. One possible solution would be to have the tube rephosphored¹⁵, however this process can only yield short-term results and might not be cost effective. This service would also require opening a vacuum-sealed tube in order to apply new phosphors to the screen. The best preservation strategy may instead be the retention of similar, compatible television tubes, (i.e. 'stockpiling') since CRTs are currently manufactured only in very small number and much larger screen sizes. It is estimated the last manufacturer will cease to provide new models and parts within the next few years. Care must be taken when replacing the tube because different manufacturers have different specifications for both the electron gun and the internal electronics. Because TV tubes are considered 'high-voltage' electronics, there is a danger of implosion if incompatible electronic parts are interchanged.

¹⁵ Phosphor is the material that, when excited by the electron gun, creates the visible light/image.

RISKS:¹⁶

There are various risks to consider when examining the physical object *Untitled*. The basic materials that make up Paik's work are plastic, metal, glass, paint and glue. The glue already shows signs of deterioration, discoloration and adhesion loss. Mold and decay are other risks to consider. The paint, also, is flaking in some areas of the piece. The metal components of the television have the potential to rust, corrode and decay, which threaten the physical sculpture, and the functional components of the television.

The chemical compounds of the paint and glue may harm the plastic. Plastic is susceptible to various kinds of deterioration depending on the base of the material and storage conditions. Deteriorating plastic made from one kind of chemical base can damage plastic made from different bases. Chemical and physical deterioration can be slowed down, but not reversed. Some common signs of plastic deterioration include cracking, crazing, warping, blooming and off-gassing¹⁷.

In addition to the physical risks of decay, there are many complicated risks to the electronics of the cathode-ray tube (CRT) television set. Several components may break

¹⁶ Resources:

- "Care and Conservation of Plastic Materials" ("Reproduced with the kind permission of the Institute of Conservation [ICON]"). The Collections Link website accessed on 12/10/06 at http://www.collectionslink.org.uk/conservemycollection/conservation_caring/caring_plastic
- "How Television Works" by Marshall Brain. How Stuff Works website accessed on 12/10/06 at <http://electronics.howstuffworks.com/tv.htm>
- "Plastics Preservation at the V&A" by Brenda Keneghan. V&A [Victoria & Albert Museum] website accessed on 12/10/06 at http://www.vam.ac.uk/res_cons/conservation/journal/number_50/plastics/index.html
- "TV and Monitor CRT (Picture Tube) Information" by Samuel M. Goldwasser. The Sci.Electronics.Repair FAQ website accessed on 12/9/06 at <http://www.repairfaq.org/sam/crtfaq.htm>
- "Understanding The TV Horizontal Output Stage" by Sencore. The Sci.Electronics.Repair FAQ website accessed on 12/12/06 at www.repairfaq.org/sam/reppic/horiz-tv.pdf

¹⁷The development of various cracks, fissures, ridges, tensions, thinning, changes in shape and release of gasses.

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down, inhibiting the functional requirements of the work—such as the diagonal line across the screen or the TV's ability to work. The lifespan of the CRT is one of the major considerations for long-term preservation of the original television set. A service or user manual may state an estimated number of hours the CRT is expected to last.

Unfortunately, there are no definitive ways to measure how far along a CRT is in its expected lifespan, or to know for certain how many hours the television has already been used. If the picture is dark, dimming or losing sharpness, these are signs that the CRT is aging. This is caused by cathode emissions becoming weak or inactive over time; the electron gun weakening due to wear and tear; or by the phosphor on the CRT surface (the material that creates the visible light/image) burning out. In this case, the diagonal line will likely get darker over time because the phosphor in that specific area is constantly burning brightly whenever the television is on.

Mishandling or rough transport causes most common problems with the operation of a TV. Because the internal components are carefully placed—including Paik's turning the deflection yoke 90 degrees—and occasionally very delicate, any type of excessive movement risks jostling or detaching an electrical element. The external knobs may also contribute to the picture, and it is very difficult to determine the exact setting of these. Mishandling may result in damage requiring a small and simple repair, or it can render the television completely inoperative.

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Distortion of the image may be caused by other external factors. For example, if the CRT is magnetized, the image may be affected. (This is mostly true for color television sets, where magnetization creates color purity problems.) For all CRT televisions, including black and white TV ones, the deflection yoke itself—the component that generates the diagonal line in *Untitled*—creates a magnetic field. Therefore, if the television gets too close to another magnetic field, it risks interference with Paik's alteration to the TV.

Signals such as radio frequencies may also create “noise” and affect the electronic beams or the scanning of the picture. Thus, there are a number of factors that may result in the loss of the diagonal line—or the loss of the picture entirely—including magnetization and other external factors, the movement or detachment of an electrical component, or general wear and tear.

CRT television sets require high voltages – creating the constant possibility of a short in any of the electrical functions. This can happen to a number of components in the TV set. Also significant is that electromagnetic activity tends to attract dust, which can also impede electrical functions. A trained television repairperson may be able to isolate a short and replace the damaged element to make the TV operational again. In terms of long-term preservation, the scarcity of the CRT tubes, the elementary components and the trained persons themselves stands to create a serious problem.

Near-term Recommendations:

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It is highly advisable that the image of *Untitled* used on the Media Conservation Laboratory Report display the television when it is turned on and thus appears in its complete state for future reference.

Current macro conditions – a stable, moderate environment (68° Fahrenheit and 50% relative humidity) are appropriate in the short-term. The temperature and humidity conditions may need to be reassessed should an internal inspection of the television reveal materials that warrant this. Plastics could be stored in a slightly lower temperature and relative humidity long term, but moderate conditions are probably best for a balance among the different materials making up the piece. Care should be taken to watch for signs of mold in the glue, as this may signal a need for drier conditions. The piece should be stored in low to no light, kept away from magnets and magnetic fields, and not moved very much, as jostling may loosen parts. The condition of the glue (excessive decay, mold) and the functioning of the CRT should be checked periodically.

Current micro conditions – including a clam shell-like box constructed of acid free cardboard with blue foam inserts and the piece wrapped in Tyvek – require revision. The double-sided tape keeping the box closed has failed and should be replaced with tape or Velcro as an initial step. The piece will benefit from enclosure and reduction of dust exposure, and the box itself should be examined for structural integrity. The box shows signs of age, and was likely constructed from two separate pieces of cardboard. It is recommended that a lightweight crate be built for the piece to prevent shifting or other movement of the television and protect it from impact.

Long-term Recommendations:

Untitled suffers from a thick coating of dust and grime – conditions that can lead to machine failure and, in the presence of spores, promote mold growth. Jon Huffman, the artist's representative, agreed that a *light* cleaning would be in order – caution must be taken with the adhered pearls. Solvents should not be used on the plastic. Either a simple dusting/brushing or a cotton swab dipped in water should be used. If water is used, the surface should be dried immediately after application. Occasional pearls may fall off without reattachment, as Paik's aesthetic extended to an appreciation of the visible aging of a work. *Untitled* may undergo cleaning or restoration work, but it definitely *should not* be restored to a pristine state. John Huffman explains that Paik celebrated decay and loved a work's unique patina. Specifically, he remarks that Paik would not necessarily want all the missing pearls to be restored to the television's surface. These comments should be considered prior to performing any conservation actions.

An experienced technician should be hired to open the case and gently vacuum the inside, to look for any signs of damage or potential conservation issues inside the television, and to determine exactly how Paik created the on-screen image. This procedure may generate valuable details for future reference regarding CRT replacement and recreation of the image, and should be clearly delineated and monitored – the technician *should not* “fix” the piece or cause damage, and the technician should be interviewed regarding the use of the various control knobs and the affect they may have on the piece, as well as asked for

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another opinion of the options available for refreshing/restoring/replacing the CRT tube and other parts of the television¹⁸.

Museum patrons may potentially wish to take pearls from the piece – one method of avoiding this involves posting a guard nearby, and a second method involves enclosure of the work in a Plexiglas box. The Plexiglas solution is not recommended – *Untitled* needs space and plenty of airflow while exhibited in order to prevent overheating, and even a ventilated Plexiglas box may restrict the needed air circulation. It is also recommended to research the possible use of filters in any open vents on the television to prevent dust from entering. These filters would need to be thin enough to allow proper airflow so as not to cause overheating. Other exhibition-related concerns to keep in mind: proper grounding for the power cord (which it currently does not have), the need to ensure that electronic devices are warmed up to room temperature before being turned on, and the purchase of backup 8” CRT screens that will fit the television.

Jon Huffman, the artist's representative, stated that use of the same make and model of the original would be preferable but not necessary. A CRT screen by itself may be difficult to find, so purchase of similar televisions to be used for parts retrieval may be

¹⁸ For reference purposes and further guidance a manufacturer's manual can be purchased, one of which was found to be available from Sams Technical Publishing (http://www.samswebsite.com/photofact/pf_search.asp). Further information about vintage television restoration and parts can be found, among other sites, at:

- Amptech Systems <http://www.amptechsystems.com/>
- Antique Electronics Supply <http://www.tubesandmore.com/>
- Early Television Museum <http://www.earlytelevision.org/>
- Radiola Guy <http://www.radiolaguy.com/>
- Tubepedia <http://www.aade.com/tubepedia/1collection/tubepedia.htm>

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more practical. This long-term concern for the survival of the piece should be implemented in the near-term *while parts are still available*.¹⁹

In order to extend longevity of the original instruments, the piece should only be exhibited in *temporary* shows, as these tend to have a shorter display term than collection rotations. During display, the number of hours the piece operates should be logged and recorded in the work's file,²⁰ to give a rough guide to where the CRT is in its lifespan and help dictate exhibition guidelines.

Part of the meaning of the piece lies in the physical workings of the CRT monitor. The use of a CRT in the piece should be maintained as long as possible. Jon Huffman stated that Paik was not opposed to migration. If CRTs can no longer be maintained or purchased,²¹ the tube could be replaced by an LCD, plasma, or other type of screen and the diagonal line could be recreated – perhaps through video. At this point, any video playback machine and connector cables should be hidden from view and the non-CRT screen should be integrated as unnoticeably as possible into the original case. While such non-CRT adaptations would seem to change a certain essence of the piece, Paik was more interested in having his work seen than in strict adherence to any “original” formation. This tension between access and preservation, creator and conserver, is the

¹⁹ Some vendors claim they can refresh or revive a dead CRT, but further research into cost effectiveness and work quality would be required for this route.

²⁰ If the CRT is replaced in the future, this log should reboot to zero. However, logging the hours the TV is in use may also be helpful, as there may be other parts that have predicted maximum hours of operation.

²¹ Rephosphoring or restoring the CRT tube are other options discussed in greater detail above, though they may be neither cost-effective nor practical.

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eternal conundrum without recommendation. That must be left to a negotiation between people and between philosophies.

Recommendations for Further Research:

- Contact the Technical Assistants listed in the *electronic art II* catalog to see if any of them worked on this piece or have any specific memories about it.
- Contact Otto Piene and interview him about his role in and memory of working on the piece.
- Investigate the various stickers affixed to the television.
 - Contact Fernanda Bonino,
 - Carl Solway Gallery, and
 - curators of the *Video Time – Video Space* exhibition to see if they put the stickers on for any reason.
 - Also contact owners of similar Paik works to see if their pieces have similar stickers.
- Research the *Video Time – Video Space* exhibition further to determine if the piece was truly exhibited by them and what the history of that exhibition was.